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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/612,971	07/10/2000	Jae-seong Shim	1293.1128/MJB	9406

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EXAMINER

TU, CHRISTINE TRINH LE

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 01/28/2004

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/612,971

Applicant(s)

SHIM ET AL.

Examiner

Christine T. Tu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-31 and 34-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-18 and 35-39 is/are allowed.
- 6) ☒ Claim(s) 19-31 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 29-31 and 34 are again rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

The claim invention is recited with data (which is an error correction block structure) embodied on a computer readable medium (which is an optical disk). However, the data does not provide functionality to either the data as claimed or to the optical disk. As such, the claimed invention is recited with non-functional descriptive material, i.e., mere data. Non-functional descriptive material stored on a computer readable medium is merely carried on the medium, it is not structurally and functionally interrelated to the medium.

3. Claims 19-27, 29-31, 34 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda et al. (6,252,383 and Kuroda hereinafter).

Claims 19-22:

Kuroda discloses the invention substantially as claimed. Kuroda teaches (figures 1A & 1B) an error correcting process for generating an ECC block from a data structure. The data structure is segmented into a plurality of data sectors (20). Each section (20) is firstly divided into plural blocks each of which is 172 bytes data (figure 1B) and each divided data is arranged in a vertical direction. At this time, the data blocks (33) are arranged in 12 lines in the vertical direction (column 5 lines 27-50).

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Kuroda also teaches that for each data block (33) arranged in the vertical direction, ECC internal code (PI) (31) having 10 bytes data is affixed to the end of the data block (33) to constitute one correction block (34). At this stage, the ECC internal codes (31) (PIs) are affixed and arranged in the vertical direction. After that, this process is repeated with respect to 16 data sectors (20) (column 5 lines 51-59).

Kuroda further teaches that the correction block (34) of 192 lines are divided in the vertical direction from the beginning thereof, for each one byte, in the state that the 192 lines of the correction blocks (34) are arranged in the vertical direction. 16 ECC external codes (PO) (32) are affixed to each of the vertically divided data blocks, It is noted that ECC external code (PO) (32) is also affixed to a portion of the ECC internal code (PI) (31) within the correction block (34) (column 5 lines 60-57).

Kuroda does not explicitly teach the features of generating PIs and POs. It would have been obvious to one having ordinary skill in the art at the time the invention was made to realize that Kuroda's error correcting process would have been comprised of the features of generating the POs and POs. The artisan would have been motivated to realize so because Kuroda teaches that each of the PIs and each of the POs is being obtained and affixed to the end of a data block (33) and a vertically divided data blocks, respectively (column 5 lines 51-67).

Claims 23-27:

Kuroda teaches that an encoder (9) affixes the ECC internal code (PI) (31) and ECC external code (PO) (32) to constitute the ECC block (30) including the interleave process to the ECC block (30) (column 8 lines 14-18).

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Claims 29-31 and 34:

Kuroda teaches a ECC block is being recorded on a DVD wherein the DVD is a high density optical disc and the like. The ECC block comprises inner parities (PIs) and external parities (POs) that are affixed and arranged in the vertical direction and in the horizontal direction (figures 1A & 1B, column 1 lines 7-13, column 6 lines 13-33 and column 5 lines 27-67).

4. Claim 28 is again rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda (6,252,838) in view of Hoshino (5,586,108).

Claim 28:

Kuroda does not teach the feature of interleaving quantity of the data in relation to the size of a burst error. Hoshino, however, teaches that the length of burst error correction of data is increased by interleaving error correction code among the sectors (abstract, lines 8-10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to Kuroda's interleaving feature would have considered the burst error correction as taught by Hoshino. One having ordinary skill in the art would be motivated to combine the teachings of Kuroda and Hoshino because both of the references teach an error correction method being used in a disk recording medium.

5. Applicant's arguments filed November 7, 2003 have been fully considered but they are not persuasive.

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Applicant argues that MPEP 2106(IV)(B)(1)(a) distinguishes between data structures which are not claimed as being embodied in a computer readable medium and computer readable medium encoded with a data stored (functional and therefore statutory).

Firstly, applicant did not fully consider the MPEP 2106(IV)(B)(1)(a). What exactly MPEP 2106(IV)(B)(1)(a) states is “a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized and is thus statutory”.

Secondly, base on claim 29, the phrase “an error correction block structure encoded on the optical disk ...” is recited. Based on the passive verb “encoded” is being recited, the error correction block structure itself cannot have encoding function. The error block structure is being encoded and then being stored on the optical disk. In other words, error correction block structure itself does not functional in active voice. But rather the encoding is a function of something else (not in the claim) that is functional to act on the non-functional error correction block structure. In other words, the encoded error correction block structure is stored on the optical disk.

Applicant argues that due to the relatively small size of the beam in an HD-DVD and high line density, the probability of error occurrence by a small defect because great in a HD-DVD as compared to DVD. Applicant also argues that the number of columns must be increased in the PI direction, when this number exceeds 256 a Galois field operation cannot be performed. Firstly, applicant should noted that Kuroda does teach that his DVD can be a high density (HD) medium (column 1 lines 7-11). Secondly, Secondly, Kuroda also teaches that 10 bytes of PI (which is less

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than 256) is being formed based on the 1272 byte of data. In other words, based in the language of claim 19 "a number of the inner parity segments is less than ... 256", Kuroda's 10 bytes of PI is surely less than 256.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

7. Claims 1-6, 8-18 and 35-39 are allowable over the prior arts of record.
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine T. L. Tu whose telephone number is (703) 305-9689. The examiner can normally be reached on Monday to Thursday from 8:30 A.M. to 6:00 P.M.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady, can be reached on (703) 305-9595.
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

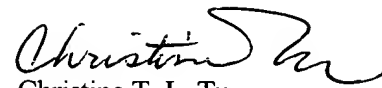
10. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

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Washington, D.C. 20231
or faxed to:
(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA. 22202, Sixth Floor (Receptionist).


Christine T. L. Tu
Primary Patent Examiner
Art Unit 2133

January 26, 2004